



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/626,142

07/24/2003

Paul A. Burgio

58359US003

9324

32692

7590

02/15/2011

3M INNOVATIVE PROPERTIES COMPANY

PO BOX 33427

ST. PAUL, MN 55133-3427

EXAMINER

SUTTON, DARRYL C

ART UNIT

PAPER NUMBER

1612

NOTIFICATION DATE

DELIVERY MODE

02/15/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

LegalUSDocketing@mmm.com

LegalDocketing@mmm.com

Office Action Summary	Application No. 10/626,142	Applicant(s) BURGIO ET AL.	
	Examiner DARRYL C. SUTTON	Art Unit 1612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,6-10,12-17,20-25,28-32,35-43 and 45-80 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,6-10,12-17,20-25,28-32,35-43 and 45-80 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/16/2010</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/16/2010 has been entered. No new claims have been added. Claims 5, 11, 19, 27 and 34 are canceled.

Applicant's arguments filed 08/16/2010 have been fully considered. Rejections and/or objections not reiterated from previous Office Actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set of rejections and/or objections presently being applied to the instant application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 1612

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1) Claims 1-3, 5, 8-10, 14-17, 22, 30-32, 36-43, 45-48, 50-64 and 69-80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitra et al. (US 5,888,491) in view of Oniki et al. (JP 410298046) translation provided, and Majeti et al. (7,025,950).

Mitra et al. disclose oral compositions (see column 15, lines 38-52) containing the instantly claimed polymers. When applied as dentifrices, the polymers do not contain pendant ethylenically unsaturated groups e.g., pendant "reactive groups", as is clear from the use of the provisional term "may" at column 9, line 59. See also column 16, lines 17. See also working example 1 at column 18, wherein the polymer used plainly does not contain any pendant ethylenically unsaturated groups; compare and contrast this with working example 2, where the inventors took additional steps to provide such groups to a UV curable coating (not a dentifrice). Unit A, present in polymers is comprised of specific groups, including hydroxy groups such as hydroxypropylmethacrylamide, fluoride-releasing groups such as 1-N,N,N-triethylammonium ethyl (meth)acrylate (column 4, lines 41-58), i.e. a fluoride ion is the inorganic anionic counterion, and (meth)acrylic esters of fluoroalkylsulfonamido alcohols, where the (hydrophobic) fluorine moiety has up to 21 perfluoro-carbons, (see the table of structural formulae provided at column 5 between lines 23-53). Unit A is derived from an ethylenically unsaturated monomer, containing at least one polar or polarizable group, such substituted amido (column 3, lines 36-38 and lines 48-51). Unit B is a modulating group, which is comprised of methacrylic esters of 1-12 carbon alcohols (column 2, lines 11 and column 5, lines 16-18).

As clear from column 19, lines 56-64 of Mitra, the prior art compositions form hydrophobic coatings on tooth enamel. The compositions are further taught to be useful for the administration of other conventional dentifrice components, e.g., therapeutic agents "such as" fluoride salts (column 15, lines 54-63).

Mitra does not teach a repeating unit comprising isopropylamide or whitening agents such as peroxides.

Oniki et al. teach oral hygiene compositions comprised of isopropylamide as a monomeric unit (Abstract and [0008]). The isopropylamide monomer helps to retain medicinal components in the mouth, i.e. teeth [0006]. The medicinal components are non-limiting and include fluoride compounds [0013].

Oniki et al. does not teach a tooth whitening agent or a repeating unit comprised of a fluoride releasing group.

Majeti et al. teach that hydrophobic polymers which form coatings on tooth enamel are particularly desirable for the delivery of oral care actives, including fluorides and whitening agents, because they facilitate deposition and retention of same. See column 8, lines 42-56. Useful whitening agents are not limited to hydrogen peroxide, and include other peroxides such as carbamide peroxide, as well as peroxyacids, chlorites, etc. (column 9, lines 12-25). From about 0.1% to about 20.0% of teeth whitening agent provide overall cleaning, whitening, stain removal and prevention of stain build-up on teeth (column 8, lines 58-64). Water may be employed in preparation of the composition (column 17, lines 20-27). The method of use comprises contacting a subject's dental enamel surfaces and oral mucosa with the oral compositions; and may

Art Unit: 1612

be by brushing, rinsing, or contacting the dentifrice by topical oral gel, mouthspray, or other forms such as films or strips (See the passage bridging column 18, line 66 to column 19, line 10).

Majeti et al. do not teach an isopropylacrylamide monomer.

At the time of the invention, it would have been obvious to modify the composition of Mitra et al. to use the isopropylacrylamide monomer of Oniki et al. as a unit A monomer, motivated by the desire to prepare oral care compositions that are retained on teeth as taught by Oniki et al. and since it is a monomer comprised of a substituted amido group as required by Mitra et al.

Generally, it is *prima facie* obvious to combine two compositions, each of which is taught by the prior art to be useful for same purpose, in order to form a third composition to be used for the very same purpose. The idea for combining them flows logically from their having been individually taught in the prior art. See MPEP 2144.06. Accordingly, it would have been obvious to use a combination of Unit A monomers, such as isopropylacrylamide and 1-N,N,N-triethylammonium ethyl (meth)acrylate, as unit A monomers in the polymer of Mitra et al. Furthermore, it would have been obvious to have used a peroxide whitening agent as the oral care active of Mitra, since the same are known oral care actives in hydrophobic polymers as taught by Majeti.

2) Claims 6, 7, 12, 13, 20, 21, 23-25, 28, 29, 49 and 65-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitra et al., Oniki et al. and Majeti et al. as

Art Unit: 1612

applied to claims 1-3, 5, 8-10, 14-17, 22, 30-32, 36-43, 45-48, 50-64 and 69-80 above, and the combination being taken further in view of Aasen et al. (US 4,871,786).

Mitra et al., Oniki et al. and Majeti et al. are discussed supra.

Mitra et al., Oniki et al. and Majeti et al. do not teach inclusion of a fluoride releasing group comprising tetrafluoroborate ions.

Aasen et al. teach that fluoride-releasing monomers containing tetrafluoroborate ions are preferred because of their compatibility with virtually all other comonomers.

See the passage bridging column 3, lines 62 to column 4, line 8.

Aasen et al. do not teach a tooth whitening agent.

Accordingly, it would have been obvious to have used the tetrafluoroborate containing monomers in forming the compositions suggested by the combined teachings of Mitra et al., Oniki et al. and Majeti et al. in order to take advantage of the art-recognized properties, i.e. fluoride releasing and compatibility. It would have also have been obvious to combine the tetrafluoroborate ion with the 1-N,N,N-triethylammonium ethyl (meth)acrylate monomer, since it requires an anionic counterion.

3) Claims 30-32, 35, 37-43, 45, 50-52 and 69-80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rozzi et al. (USP 5,607,663) in view of Oniki et al. and Majeti et al. (USP7,025,950).

Rozzi et al. is substantially similar to that applied in subsection "1)" supra, except that it teaches the incorporation of hydrophobic hydrocarbon groups such as

Art Unit: 1612

octadecylacrylate, which Mitra et al. patent lacked (column 5, lines 40-42). Again, note that the use of the provisional term "may" at column 5, line 49; "can't" at column 11, line 43; and "when" at column 12, lines 36 and 46. Again, the prior art discloses dentifrices and teaches the inclusion of oral care actives therein (see the passage bridging column 11, line 60 to column 12, line 19).

Rozzi et al. does not teach isopropylacrylamide and whitening agents.

Oniki et al. and Majeti et al. are discussed supra.

As before, it would have been obvious to use the isopropylacrylamide monomer of Oniki et al. as a unit A monomer, motivated by the desire to prepare oral care compositions that are retained on teeth as taught by Oniki et al. and since it is a monomer comprised of an substituted amido group as required by Rozzi et al. and to use a combination of Unit A monomers, such as isopropylacrylamide and 1-N,N,N-triethylammonium ethyl (meth)acrylate, as unit A monomers in the polymer suggested by combining Rozzi et al. and Oniki et al. It would have also been obvious to have used a carbamide peroxide, peroxyacid or chlorite whitening agent as the oral care active in the composition suggested by combining Rozzi et al. and Oniki et al. since the same are known oral care actives as taught by Majeti et al.

All claims are rejected.

Conclusion

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darryl C. Sutton whose telephone number is (571)270-3286. The examiner can normally be reached on M-Th from 7:30AM to 5:00PM EST or on Fr from 7:30AM to 4:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frederick Krass, can be reached at (571)272-0580. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

/Darryl C Sutton/
Examiner, Art Unit 1612

/Frederick Krass/

Supervisory Patent Examiner, Art Unit 1612